

**SOUTHWEST FISHERIES SCIENCE CENTER  
SECOND QUARTER REPORT-FY 2001**

For the Period January 1, 2001 - March, 30, 2001

**Submitted By: Lab Director/Division Director/Group Chief:** John Hunter, Director,  
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**Title of Accomplishment or Milestone:** Produce report on results of population genetic analysis of copper rockfish, *Sebastes caurinus* along the west coast of North America and in the Puget Sound.

**Current Status of Accomplishment or Milestone:** An analysis of population genetic structure of copper rockfish has been completed. A manuscript "Patterns of larval dispersal in the copper rockfish (*Sebastes caurinus*) inferred from genetic population structure: open coast vs internal waterways has been submitted to Conservation Genetics. The technical information has been incorporated into the deliberations and final technical document of the Biological Review Team (BRT) for a status review of the Endangered Species Act (ESA) status of Puget Sound stocks of three rockfish species "Status review of copper rockfish (*Sebastes caurinus*), quillback rockfish, (*Sebastes maliger*), and brown rockfish (*S. auriculatus*) in Puget Sound, Washington.

**Background:** Rockfish stocks are in serious decline. In Puget Sound stocks of many rockfish are at levels that have prompted filing a petition under the ESA. NMFS accepted the petition and instituted a status review. The first step in an ESA process is defining Distinct Population Segments DPS's. The DPS can be the entire population or a subset that contains unique local characteristics worthy of protection even if the entire stock is not endangered. Genetics provide a reasonable approach to determining DPS's. Copper rockfish are heavily fished and coming under new management regimes on the outer coast. Here it is important to define unit stocks for management.

**Purpose of Activity:** The purpose of the genetic study was to gather samples from throughout the adult range and determine if there were significant differences between southern, central and northern portions of range and between the outer coast and different regions of the Georgia Basin including Puget Sound that would suggest limited dispersal of individuals.

**Description of Accomplishment and Significant Results:** We have provided microsatellite data for 6 loci from 240 fish from 6 locations. Fish were from Queen Charlotte, British Columbia to San Miguel Island in California. Significant isolation by distance was observed along the outer coast and the Puget Sound stocks differed very significantly from populations located 75 k distant in the Georgia Strait and from the outer coast. This indicates several DPS's including the Puget Sound stock considered in the ESA listing.

**Significance of Accomplishment:** This result combined with distributional data suggested that the BRT was justified in considering Puget Sound an isolated region with very limited larval dispersal. Dispersal was greater but still limited along the outer coast.

**Problems (if any):** Improved resolution of the DPS's in the northern basin would benefit from more sampling

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